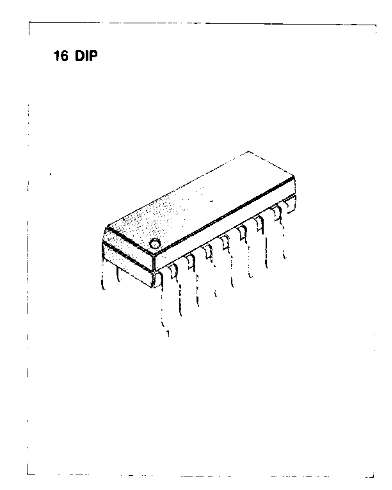
FM IF/AM TUNER SYSTEM

The KA22471 is a monolithic integrated circuit developed for the radio cassette tape recorder.



FUNCTIONS

- AM SECTION: Converter, IF amplifier, Detector, Tuning indicator.
- FM SECTION: IF amplifier, Quadrature detector, Tuning indicator.

FEATURES

- **Low quiescent circuit current.**
  AM: 7mA (Typ) FM: 10mA (Typ)
- **A minimum number of external parts required.**
- **Built-in AM/FM function switch.**
- **Tuning indicator: direct LED driving capability: I_{LAMP} = 10mA (MAX)**
- **One terminal AM/FM detector output.**
- **Advanced performance at high input signal.**
- **Operating supply voltage range: V_{CC} = 3V ~ 8V.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA22471	16 DIP	−20°C ~ +70°C

BLOCK DIAGRAM

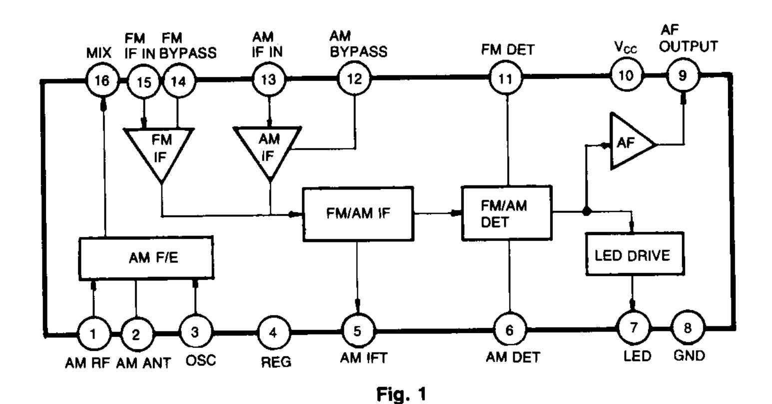


Fig. 1

3

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	8	V
Power Dissipation	P_D	600	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temperature	T_{STG}	−40 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(T_a=25°C, V_{CC}=5V, unless otherwise specified)

FM Section (f=10.7MHz, fm=400Hz, Δf= ±22.5KHz)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCQ}	V_I=0		10	15	mA
−3dB Limiting Sensitivity	$V_{I\,(LIM)}$	V_O (V_I=80dBμ) −3dB down		40	46	dBμ
Detector Output Voltage	$V_{O\,(DET)}$	V_I=66dBμ, R_{DUMP}=4.7KΩ	57	85	114	mV
Total Harmonic Distortion	THD	V_I=80dBμ		0.05		%
AM Rejection Ratio	AMR	V_I=80dBμ, AM: fm=1KHz, 30% Mod		38		dB
Signal to Noise Ratio	S/N	V_I=80dBμ		65		dB
Signal Meter Output	V_M	V_I=100dBμ	1.55	1.7	1.85	V
Tuning Indication Voltage	V_L	I_{LAMP}=1mA		46	52	dBμ

AM Section (f=1MHz, 30% Mod, fm=400Hz)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCQ}	V_I=0		7	10	mA
Voltage Gain	G_V	V_I=26dBμ	20	30	60	mV
Detector Output Voltage	$V_{O\,(DET)}$	V_I=60dBμ	65	95	125	mV
Total Harmonic Distortion	THD	V_I=60dBμ		1.0		%
Signal to Noise Ratio	S/N	V_I=60dBμ		47		dB
Signal Meter Output	V_M	V_I=100dBμ	1.55	1.7	1.85	V
Tuning Indication Voltage	V_L	I_{LAMP}=1mA		32		dBμ
Oscillator Stop Voltage	V_{STOP}	R_{DUMP}= ∞		1.5		V



TEST CIRCUIT

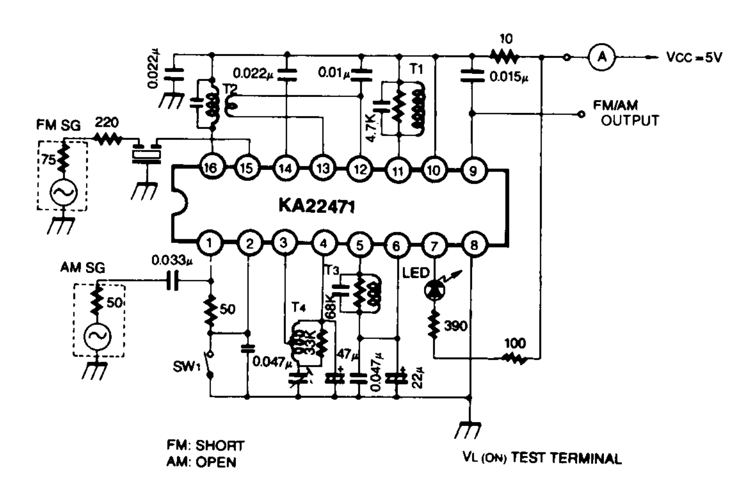
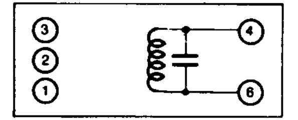


Fig. 2

COIL SPECIFICATIONS

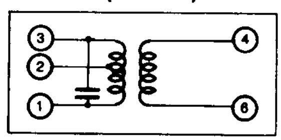
T1 FM IF (DET)



Co (pF)	f (MHz)	Qo	TURNS
4-6		4-6	4-6
47	10.7	150	14

Seoul Jupa
0.12mmφ UEW

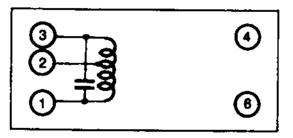
T2 AM IFT (MIX OUT)



Co (PF)	f (KHz)	Qo	TURNS		
1-3		1-3	1-2	2-3	4-6
180	455	110	90	62	8

Seoul Jupa
0.07mmφ UEW

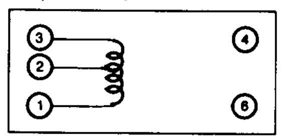
T3 AM IFT (DET)



Co (pF)	f (KHz)	Qo	TURNS
1-3		1-3	1-3
180	455	110	152

Seoul Jupa
0.07mmφ UEW

T4 (MW OSC)



f (KHz)	L (μH)	Qo	TURNS	
	1-3	1-3	1-2	2-3
796	288	120	13	75

Seoul Jupa
0.08mmφ UEW

APPLICATION CIRCUIT

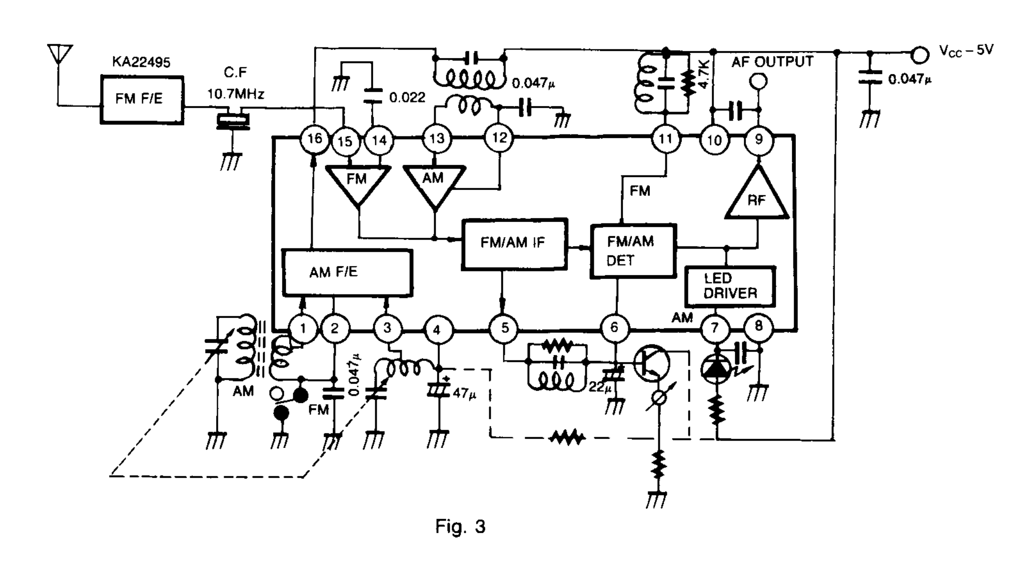


Fig. 3